

Four new species of *Begonia* L. (Begoniaceae) from Guangxi , China

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Abstract Four new species of the genus *Begonia* L. (Begoniaceae) from Guangxi , China are described and illustrated.

Key words *Begonia* , *B. zhangii* D. Fang & D. H. Qin , *B. jingxiensis* D. Fang & Y. G. Wei , *B. mshanica* D. Fang & D. H. Qin , *B. suboblata* D. Fang & D. H. Qin , new species , Guangxi , China.

In the course of checking specimens of the genus *Begonia* L. (Begoniaceae) from Guangxi , China , the following four species were found to be new to science.

Sect. *Coelocentrum* Irmsch.

1 *Begonia zhangii* D. Fang & D. H. Qin , sp. nov. Fig. 1

张氏秋海棠

Species *B. filiformi* Irmsch. affinis , sed foliis supra annulo lato viridulo-suffuso ornatis , utrinque glandulosis mixtis , petiolis laminis saepe longioribus , scapis brevioribus 11 – 17.5 cm altis , floris masculi feminei tepalis exterioribus omnino majoribus recedit.

Herba perennis , acaulis. Rhizoma repens , villosum , ad nodos radicans , internodiis 4 – 15 mm longis , 4 – 9 mm in diam. Stipulae ovatae vel late ovatae , 9 – 12 mm longae , 5 – 7 mm latae , margine longe ciliatae , dorso secus costam juventute villosae , apice aristatae. Folia 3 – 10 , basalia , petiolis 5 – 22 cm longis crispe brunneo-villosis et glandulosis deinde glabrescentibus ; laminae chartaceae , valde inaequilaterales , ambitu late ovatae , 5.5 – 20 cm longae , 5 – 17 cm latae , apice breviter acuminatae , basi oblique cordatae , margine denticulatae ciliolatae , supra annulo lato viridulo-suffuso ornatae , juventute setulosae et brunneo-glandulosae deinde sensim glabrescentes , subtus dense albido-puncticulatae , brunneo-glandulosae , ad nervos dense crispe brunneo-pubescentes , nervis palmatis 6 – 7. Scapus e rhizomate ortus , 11 – 17.5 cm altus , dichasium 2 – 3 (– 6)-ramosum , ramis et pedicellis cum scapo sparse glandulosis et crispe brunneo-pilo-glandulosis , 4 – multi-florum ; bractae ovato-oblongae vel triangulato-ovatae vel late obovatae , 2.5 – 9 mm longae , 2 – 4 mm latae , margine denticulatae , denticulis apice glanduloso-ciliatis. Tepala rubella. Flores masculi : pedicelli 9 – 13 mm longi ; tepala 4 , exteriora 2 late ovata vel rotunda , 12 – 19 mm longa , 10 – 16 mm lata , extus sparse brunneo-pilo-glandulosa , interiora 2 obovata , 12 – 14 mm longa , 4 – 5 mm lata , glabra , obtusiuscula ; stamina numerosa , basi connata , filamentis 1 mm longis , antheris obovatis , 1.2 – 1.5 mm longis , apice retusis. Flores feminei : pedicelli 7 – 10 mm longi ; tepala 3 , exteriora 2 rotunda , 12 – 15 mm longa , 12 mm lata , extus sparse brunneo-pilo-glandulosa , internum 1 obovatum , 5 mm longum , 2 mm latum , glabrum , subacutum ; styli 3 , infra medium connati , stigmatibus bifidis contortis papillosis ; ovarium 1-loculatum , placentae segmentis

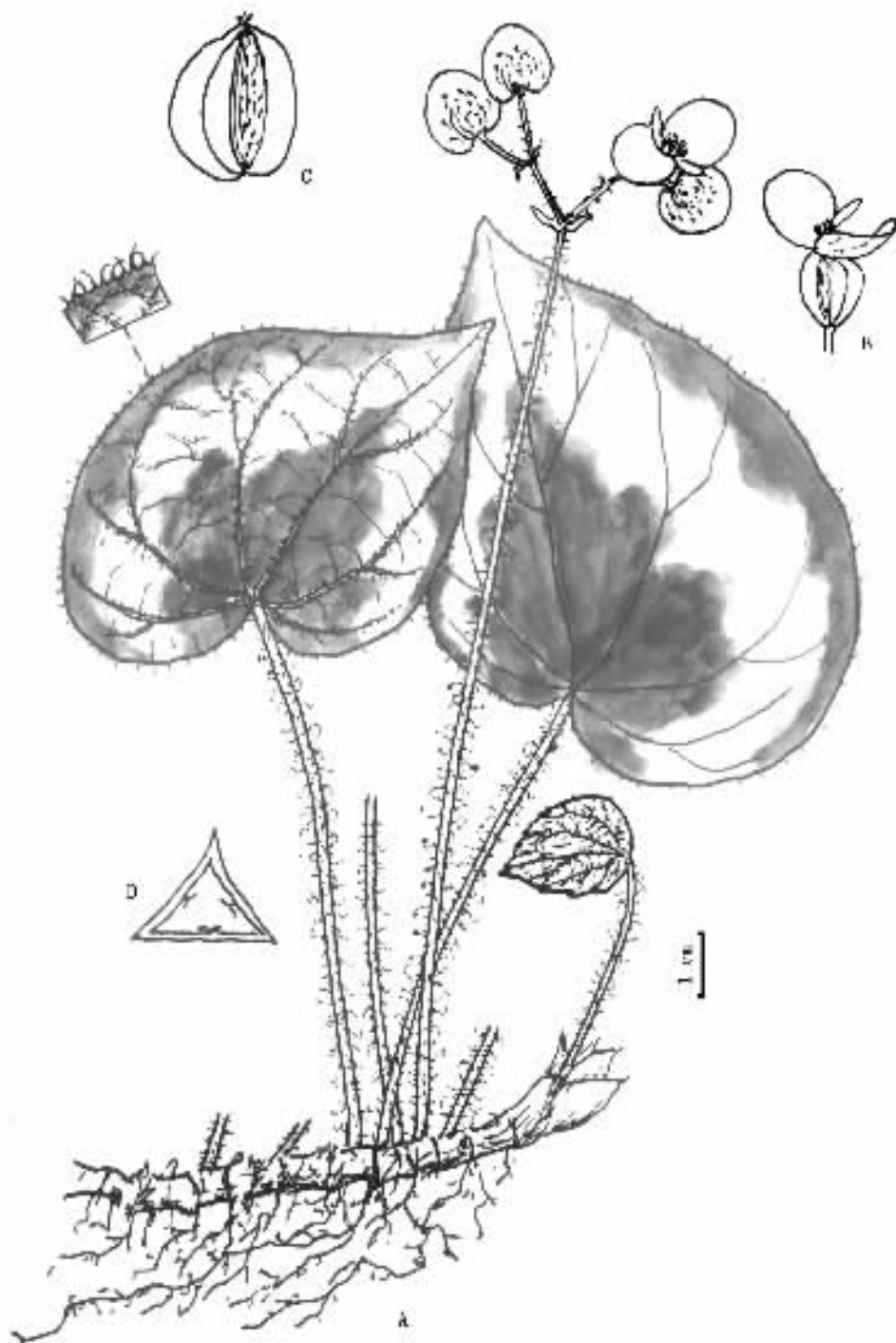


Fig. 1. *Begonia zhangii* D. Fang & D. H. Qin. A , habit ; B , female flower ; C , capsule ; D , transverse section of capsule. Drawn by X. P. Liao from C. L. Zhang et al. 033 and C. L. Zhang et al. 73310.

2. Capsula pedicello fructifero 14 – 20 mm longo , pendula , anguste ellipsoidea , 15 mm longa , sparse brunneo-pilo-glandulosa , 3-alata , alis lunatis subinaequilongis , ea majore 4.5 mm longa ,

eis duabus minoribus 3–4 mm longis. Semina numerosa, minuta. Fl. Mar.

Herb perennial, stemless. Rhizome creeping, villous, rooting at the nodes, internodes 4–15 mm long, 4–9 mm in diam. Stipules ovate or broadly ovate, 9–12 mm long, 5–7 mm wide, margin long ciliate, along midrib villous dorsally when young, apex aristate. Leaves 3–10, basal; petioles 5–22 cm long, crisped brown villous and glandular, then glabrescent; blade papery, very unequally sided, broadly ovate, 5.5–20 cm long, 5–17 cm wide, apex shortly acuminate, base obliquely cordate, margin denticulate and ciliolate, adaxially adorned with a wide greenish ring, when young setulose and brown glandular, gradually glabrescent, abaxially densely whitish punctulate and brown glandular, on the nerves densely crisped brown pubescent, palmately 6–7-nerved. Scape arising from rhizome, 11–17.5 cm high, dichasium 2- or 3-, rarely 6-branched, together with scape sparsely glandulose and crisped brown glandular hairy, 4–many-flowered; bracts ovate-oblong, triangular-ovate or broadly obovate, 2.5–9 mm long, 2–4 mm wide, margin denticulate, teeth glandular-ciliate at the tip. Tepals reddish. Male flowers: pedicels 9–13 mm long; tepals 4, outer 2 broadly ovate or rounded, 12–19 mm long, 10–16 mm wide, sparsely brown glandular hairy outside, inner 2 obovate, 12–14 mm long, 4–5 mm wide, glabrous, somewhat obtuse; stamens numerous; filaments 1 mm long, base connate; anthers obovate, 1.2–1.5 mm long, connectives not extended. Female flowers: pedicels 7–10 mm long; tepals 3, outer 2 rounded, 12–15 mm long, 12 mm wide, sparsely brown glandular hairy outside, inner 1 obovate, 5 mm long, 2 mm wide, glabrous, somewhat acute; styles 3, connate from the middle to bottom; stigmas bifid, contorted, papillate; ovary uniloculed; placentae 3, parietal, bifid. Capsule with stipe 14–20 mm long, nodding, narrowly ellipsoid, 15 mm long, sparsely brown glandular hairy, 3-winged, wings crescent-shaped, somewhat unequally long, one larger, 4.5 mm long, the other two smaller, 3–4 mm long. Seeds numerous and minute. Flowering in March.

China. Guangxi (广西): Longan (隆安), Dujie (都结), in forests, limestone hill, 1984-03-29, C. L. Zhang et al. (张超良等) 033 (holotype, here designated, GXMI), 042 (GXMI); the same locality, alt. ca. 300 m, 2002-04-04, C. L. Zhang et al. (张超良等) 73310 (frs., GXMI, IBK, PE).

Begonia zhangii is close to *B. filiformis* Immsch., but differs by having leaf blades adorned with a wide greenish ring above, and mixed glandulose on both surfaces, petioles often longer than leaf blades, scape shorter (11–17.5 cm high), and outer tepals of both male and female flowers larger.

The species is named after C. L. Zhang, one of the collectors of the holotype specimen.

Sect. *Diploclinium* (Lindl.) A. DC.

1 *Begonia jingxiensis* D. Fang & Y. G. Wei, sp. nov. Fig. 2

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Species nova ob tepala 2 affinis *B. xishuiensi* Ku, a qua rhizomate repenti, foliis 2–8, juventute utrinque tomentosis, margine saepe lobatis, lobis late triangulatis 2–10 mm longis differt.

Herba perennis, acaulis. Rhizoma repens, noduliforme, saepe ramificatum, juventute villosum, ad nodos radicans, internodiis 3–11 mm longis, 4–5 mm in diam. Stipulae ovatae, 10 mm longae, 7 mm latae, extus secus costam parce villosae, apice aristatae. Folia 2–8, basalia, petiolata; laminae chartaceae, saepe valde inaequilaterales, ambitu late ovatae vel rotundae, 3.5–9.5 cm longae, 4–11 cm latae, apice breviter acuminatae, basi oblique cordatae, margine denticulatae ciliatae (pilis 1.5–5 mm longis) et saepe lobatae, lobis late triangulatis 2–10 mm longis,

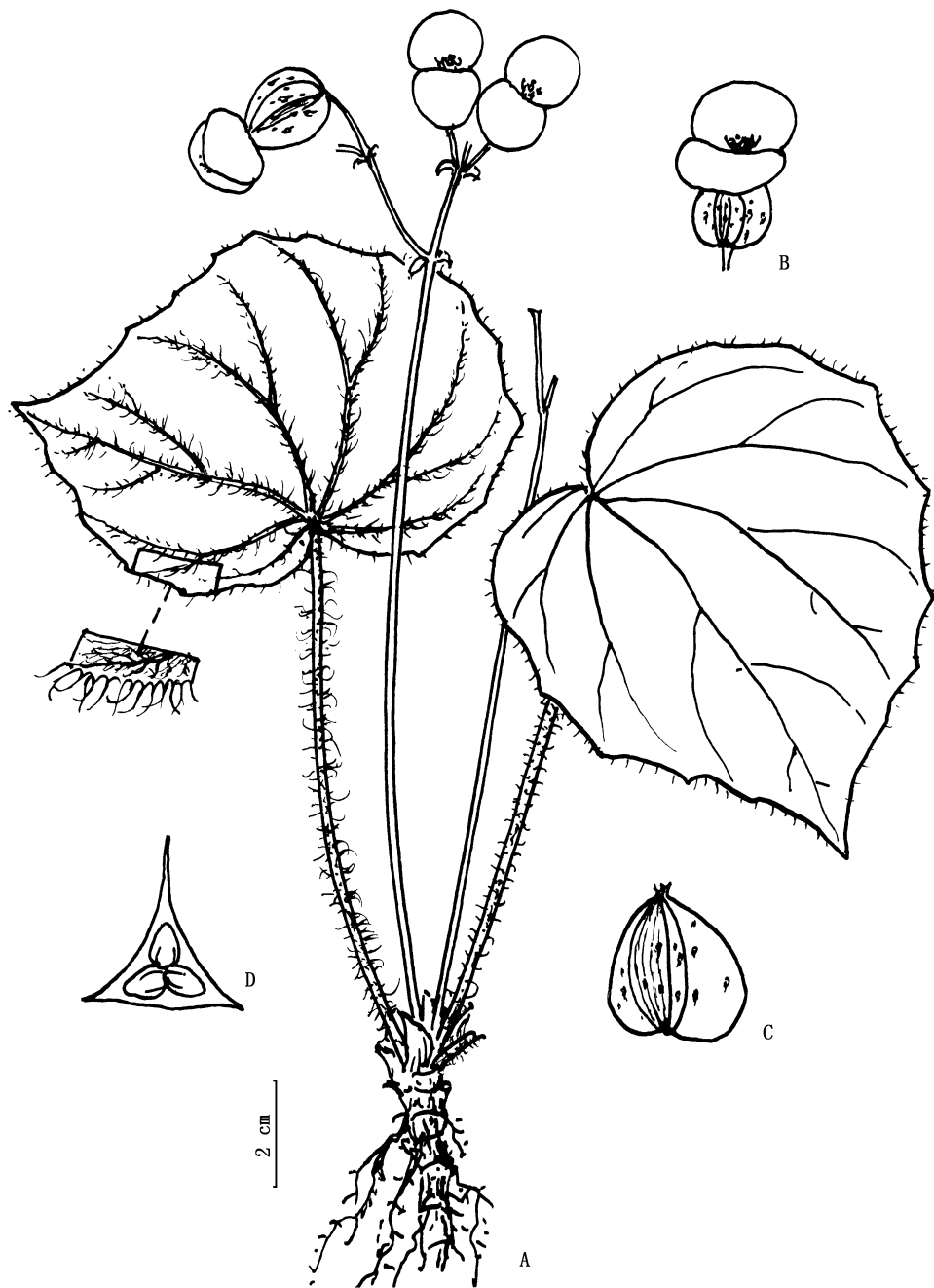


Fig. 2. *Begonia jingxiensis* D. Fang & Y. G. Wei. A , habit ; B , female flower ; C , capsule ; D , transverse section of capsule. Drawn by X. P. Liao from the type gathering , Y. G. Wei 0215.

utrinque initio brunneo-tomentosae deinde sensim glabrescentes , supra dense foveolatae , subtus ad nervos crispe brunneo-villosae , palmatim 6 – 8-nerves ; petioli robusti 3 – 16 cm longi , 2 – 4 mm in diam. , juventute dense crispe brunneo-villosae et tomentosae deinde subglabri. Scapus saepe ex apice rhizomatis oriundus , 8 – 19 cm altus , angulatus ; dichasium 2 – 3(– 10)-ramosum , ramis cum scapis subglabris , 4 – multi-florum ; bractae oblongae vel ellipticae , circ. 1 mm longae , 0.7

mm latae , glanduloso-ciliolatae . Tepala rubella . Flores staminati : pedicelli 5 – 15 mm longi ; tepala 2 , late ovata vel suborbiculata , 10 – 12 mm longa , 10 – 11 mm lata , extus sparsissime nigro-glandulosa ; stamina numerosa , filamentis 1.5 mm longis , antheris oblongis vel obovatis , 1.2 – 1.5 mm longis , apice retusis . Flores pistillati : pedicelli 5 – 8 mm longi ; tepala 2 , oblata , 10 mm longa , 13 mm lata , extus sparsissime nigro-glandulosa ; styli 3 , basi connati , stigmatibus bifidis subcontortis papillois ; ovarium 3-loculatum , placentis 2-lamellatis . Capsula stipitata , stipite 10 – 20 mm longo , pendula , ovoidea , 11 mm longa , cum alis sparsissime nigro-glandulosa , inaequaliter 3-alata , ala una majore subsemiorbiculata , 8 mm longa , alis ceteris duabus lunatis 3 mm longis . Semina numerosa , minuta . Fl. Oct .

Herb perennial , acaulescent . Rhizome repent , nodule-like , often branched , villous when young , rooting at the nodes , internodes 3 – 11 mm long , 4 – 5 mm in diam . Stipules ovate , 10 mm long , 7 mm wide , along midvein slightly villous dorsally , apex aristate . Leaves 2 – 8 , basal , petiolate ; blade papery , often very unequally sided , broadly ovate or rounded , 3.5 – 9.5 cm long , 4 – 11 cm wide , apex shortly acuminate , base obliquely cordate , margin denticulate and ciliate (hairs 1.5 – 5 mm long) , and often with lobes 2 – 10 mm long and widely triangular , both surfaces first brown tomentose then gradually glabrescent , adaxially densely foveolate , abaxially crisped brown villous on the nerves , palmately 6 – 8-nerved ; petioles robust , 3 – 16 cm long , 2 – 4 mm in diam . , densely brown crisped villous intermixing with tomentose hairs when young , but subglabrous thereafter . Scape arising from apex of rhizome , 8 – 19 cm high , angular ; dichasium 2- or 3- , rarely 10-branched , together with scape subglabrous , 4 – many-flowered ; bracts oblong or elliptic , ca. 1 mm long , 0.7 mm wide , glandular-ciliolate . Tepals reddish . Staminate flowers : pedicels 5 – 15 mm long ; tepals 2 , broadly ovate or suborbicular , 10 – 12 mm long , 10 – 11 mm wide , very scatteredly black glandular outside ; stamens numerous ; filaments 1.5 mm long ; anthers oblong or obovate , 1.2 – 1.5 mm long , connectives not extended . Pistillate flowers : pedicels 5 – 8 mm long ; tepals 2 , oblata , 10 mm long , 13 mm wide , very scatteredly black glandular outside ; styles 3 , base connate ; stigmas bifid , slightly contorted , papillate ; ovary triloculed ; placentae axile , bifid . Capsule with stipe 10 – 20 mm long , nodding , ovoid , 11 mm long , together with wings very scatteredly black glandular , unequally 3-winged , the larger one subsemiorbiculata , 8 mm long , the other two smaller , crescent-shaped , 3 mm long ; seeds numerous , minute . Flowering in October .

China. Guangxi (广西) : Jingxi (靖西) , Hurun (湖润) , in forests , limestone hill , alt. 450 m , 2002-10-27 , Y. G. Wei (韦毅刚) 0215 (holotype , here designated , IBK ; isotypes , GXMI , PE) .

The species is similar to *B. xishuiensis* Ku in having two tepals , but differs by having rhizome repent , 2 – 8 leaves tomentose on both surfaces when young , leaf blades often lobed , lobes widely triangular , about 2 – 10 mm long . *B. xishuiensis* is glabrous throughout the entire plant and has globose rhizome and only one leaf with lobes 3.8 – 4 cm long .

2 *Begonia mshanica* D. Fang & D. H. Qin , sp. nov. Fig. 3

马山秋海棠

Species nova ob formas foliorum similis *B. leprosa* Hance , sed laminis utrinque fructibusque non scrobiculatis , tepalis 2 , fructibus 3-alatis differt .

Herba perennis , acaulis . Rhizoma repens , juventute villosum , ad nodos radicans , internodiis 5 – 10 mm longis , 1.5 – 5 mm in diam . Stipulae latissime ovatae circ. 12 mm in diam . , margine fimbriatae , apice aristatae . Folia 2 – 4 , basalia , petiolata ; laminae chartaceae , aequilaterales interdum subinaequilaterales , reniformes raro ambitu late ovatae , 4 – 7 cm longae , 5 – 11.5 cm

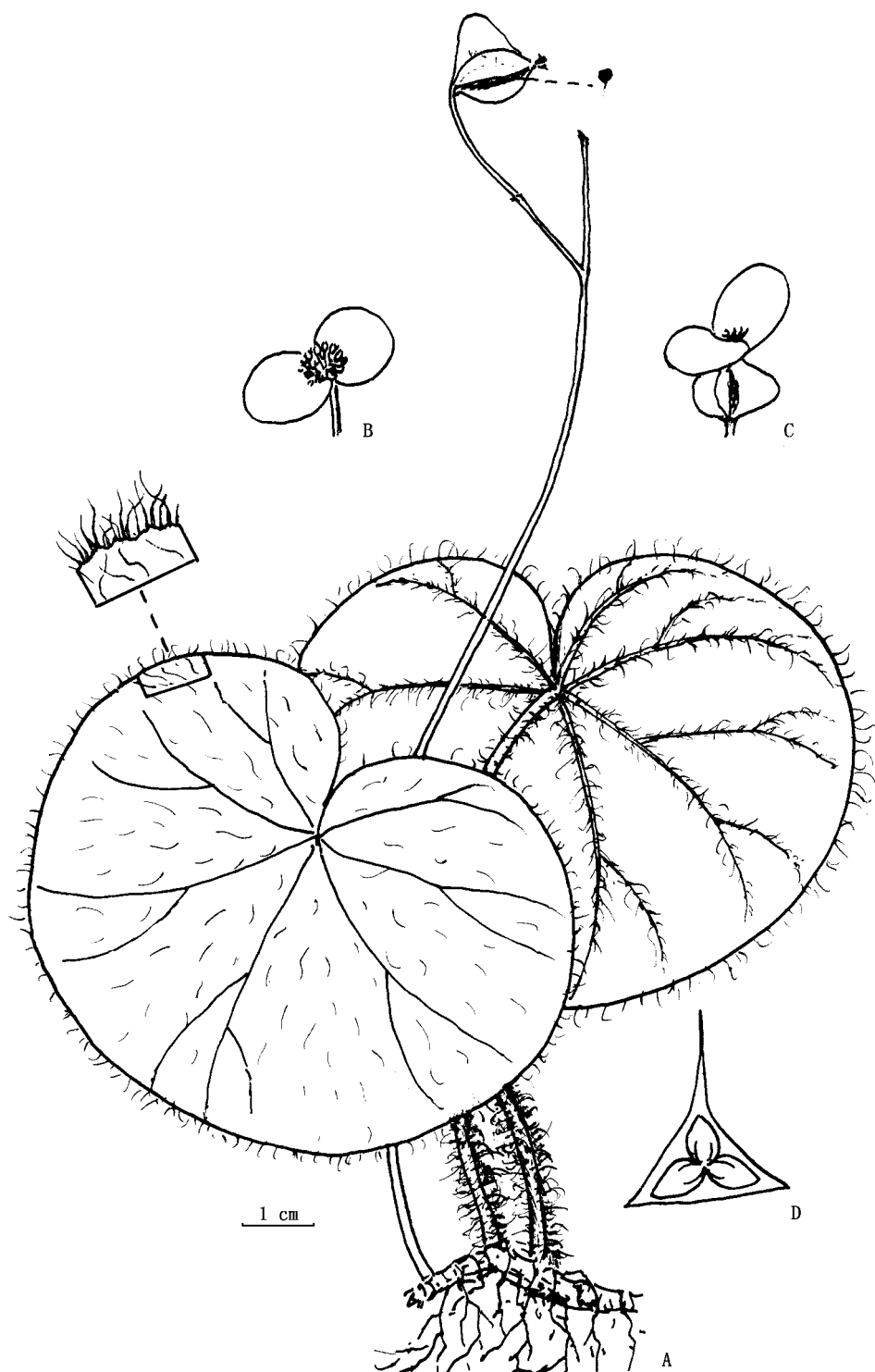


Fig. 3. *Begonia mashanica* D. Fang & D. H. Qin. A , habit ; B , male flower ; C , female flower ; D , transverse section of capsule. Drawn by X. P. Liao from the type gathering , D. Fang & D. H. Qin 31380.

latae , apice rotundae raro subobtusae , basi profunde cordatae interdum subobliquae , margine denticulatae ciliatae (pilis 4 – 5 mm longis) , supra juventute villis brunneolis densis 2.5 – 6 mm longis tectae deinde glabratae , subtus crispe brunneo-villosae , ad nervos densius villosae , palmatim 7-nerves ; petioli 2 – 12 cm longi , crispe brunneo-villosi . Scapus ex apice rhizomatis oriundus , 9.5 – 18 cm altus ; dichasium 2- vel 4-ramosum , ramis et pedicellis cum scapo valde parce atro-brunneo-glandulosus , 4 – multi-florum ; bractae late obovatae vel oblongae , 2 – 2.5 mm longae , 0.6 – 1.5 mm latae , margine parce atro-brunneo-glandulosae , apice interdum denticulatae , caducae . Tepala rufa . Flores staminati : pedicelli 8 – 13 mm longi , flaccidi ; tepala $\chi - 3$) , exteriora 2 suborbiculata vel obovatae , 11 – 12 mm longa , 11 – 12.5 mm lata , extus valde parce atro-brunneo-glandulosa , internum 1 anguste obovatum , 8 mm longum , 4 mm latum , acutum ; stamina numerosa ; filamentis 1.5 mm longis ; antheris obovatis , 1 mm longis , apice retusis vel truncatis . Flores pistillati : pedicelli 8 – 10 mm longi , flaccidi ; tepala 2 , late obovata , 13 mm longa , 11 mm lata , extus valde parce atro-brunneo-glandulosa ; styli 3 , inferne connati , stigmatibus bifidis subcontortis papillosis ; ovarium 3-loculatum , placentis 2-lamellatis . Capsula stipitata , stipite 13 – 15 mm longo , pendula , late ovoidea , 6 mm longa , valde parce atro-brunneo-glandulosa , inaequaliter 3-alata , ala maxima subligulata 6 mm longa , reliquis duabus lunatis 2 – 3 mm longis . Semina numerosa , minuta . Fl. Oct.

Herb perennial , acaulescent . Rhizome repent , villous when young , rooting at the nodes , internodes 5 – 10 mm long , 1.5 – 5 mm in diam . Stipules very broadly ovate , ca. 12 mm in diam . , margin fimbriate , apex aristate . Leaves 2 – 4 , basal , petiolate ; blade papery , equally but sometimes slightly unequally sided , reniform , rarely broadly ovate , 4 – 7 cm long , 5 – 11.5 cm wide , apex rounded , rarely obtuse , base deeply cordate , sometimes slightly oblique , margin denticulate and ciliate (hairs 4 – 5 mm long) , adaxially when young densely covered with brown villous hairs 2.5 – 6 mm long , then glabrate , abaxially crisped brown villous , on the nerves more densely so , palmately 7-nerved ; petioles 2 – 12 cm long , crisped brown villous . Scape arising from apex of rhizome , 9.5 – 18 cm high ; dichasium 2- or 4-branched , together with scape very scatteredly dark brown glandular , 4 – many-flowered ; bracts broadly obovate or oblong , 2 – 2.5 mm long , 0.6 – 1.5 mm wide , margin scatteredly dark brown glandular , apex sometimes denticulate , caducous . Tepals reddish . Staminate flowers : pedicels 8 – 13 mm long , flaccid ; tepals 2 , rarely 3 , outer 2 suborbicular or obovate , 11 – 12 mm long , 11 – 12.5 mm wide , very scatteredly dark brown glandular outside , inner 1 narrowly obovate , 8 mm long , 4 mm wide , acute ; stamens numerous ; filaments 1.5 mm long ; anthers obovate , 1 mm long , connectives not extended . Pistillate flowers : pedicels 8 – 10 mm long , flaccid ; tepals 2 , broadly obovate , 13 mm long , 11 mm wide , very scatteredly dark brown glandular outside ; styles 3 , connate below ; stigmas bifid , slightly contorted , papillate ; ovary triloculed ; placentae axile , bifid . Capsule with stipe 13 – 15 mm long , nodding , broadly ovoid , 6 mm long , very scatteredly dark brown glandular , unequally 3-winged , the larger one subligulate , 6 mm long , the other two smaller , crescent-shaped , 2 – 3 mm long . Seeds numerous and minute . Flowering in October .

China. **Guangxi** (广西) : Yishan (宜山) , Desheng (德胜) , in forests , 1977-09-29 , Yishan Exped. (宜山队) 4-2-261a (GXMI) ; Mashan (马山) , Yangxu (杨圩) , limestone hill , in cavern , rare , alt. 180 m , 2001-10-24 , D. Fang & D. H. Qin (方鼎 , 覃德海) 31380 (holotype , here designated , GXMI) .

In the shape of leaves this species is very similar to *B. leprosa* Hance , but differs by having leaves and fruits not scrobiculate , 2 tepals and fruits 3-winged . In *B. leprosa* , there are 4 tepals

and the fruits are clavate and wingless , and the leaves and fruits are obviously scrobiculate when dry .

3 *Begonia suboblata* D. Fang & D. H. Qin , sp. nov. Fig. 4

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Habitu affinis *B. gulinquigensi* S. H. Huang & Shui , a qua foliis reniformibus juventute supra villis longis 7 – 13 mm longis obiectis , nervis palmatis cum eis lateralibus in vivo albis , floribus pistillatis tepalis 3 abhorret .

Herba perennis , acaulis . Rhizoma repens , villosum , interdum ramificatum , ad nodos radicans , internodiis 3 – 6 mm longis , 2 – 6 mm diam . Stipulae late vel latissime ovatae , 3 – 5 mm longae , 3 – 6 mm latae , margine fimbriatae , apice aristatae . Folia 2 – 5 , basalia ; petioli 2 – 11 cm longi , juventute dense vetustate parce brunneo-villosi ; laminae chartaceae vel crasse chartaceae , aequilaterales , reniformes , 2 – 4.7 cm longae , 3 – 8 cm latae , basi cordatae vel interdum subobliquae , margine denticulatae et ciliis 1 – 6 mm longis ornatae , supra juventute villis brunneolis densis 7 – 13 mm longis et glandulis atro-brunneolis tectae deinde glabratae , subtus dense albido-puncticulatae et valde parce atro-brunneo-glandulosae , ad nervos brunneo-villosae , nervis palmatis 6 – 8 , cum nervis lateralibus juventute utrinque purpuratis mox supra albenibus . Scapus ex apice rhizomatis oriundus , 5.5 – 14.5 cm altus , cum pedicellis et ramis cymae glaber vel fere glaber ; dichasium 1- vel 2-ramosum , 2 – 4-florum ; bractae caducae . Tepala intus alba extus rubello-suffusa , glabra . Flores staminati : pedicelli 5 – 15 mm longi ; tepala 4 , 2 exteriora suboblata , 9 – 10 mm longa , 11 – 13 mm lata , 2 interiora obovata , 6 – 7 mm longa , 3 – 3.5 mm lata , obtusiuscula ; stamina numerosa , filamentis 1 – 1.5 mm longis , antheris obovatis , 1.2 mm longis , apice retusis . Flores pistillati : pedicelli 6 – 10 mm longi ; tepala 3 , 2 exteriora suboblata 6 mm longa , 8 mm lata , 1 internum anguste obovatum , 5 mm longum , 2.5 mm latum , obtusiusculum ; styli 3 , basi connati , stigmatibus U-formibus , non contortis , papillosis ; ovarium laevis , 3-loculatum , placentis 2-lamellatis . Capsula pendula , ovoidea , 7 mm longa , glabra , aequaliter 3-alata , alis subsemiorbiculatis 5 mm longis . Semina numerosa , minuta . Fl. Apr.

Herb perennial , acaulescent . Rhizome repent , villous , sometimes branching , rooting at nodes , internodes 3 – 6 mm long , 2 – 6 mm in diam . Stipules broadly or very broadly ovate , 3 – 5 mm long , 3 – 6 mm wide , margin fimbriate , apex aristate . Leaves 2 – 5 , basal ; petioles 2 – 11 cm long , densely villous when young and sparsely villous and brownish when old ; blade papery or thickly papery , equally sided , reniform , 2 – 4.7 cm long , 3 – 8 cm wide , base cordate or sometimes suboblique , margin denticulate and ciliate (hairs 1 – 6 mm long) , adaxially densely brown villous (hairs 7 – 13 mm long) , and dark brown glandular when young , then glabrate , abaxially densely whitish punctulate and very scatteredly dark brown glandular , brown villous on the nerves , palmately 6 – 8-nerved , palmate nerves together with lateral ones on both surfaces purpurate when young , soon above whitish . Scape arising from apex of rhizome , 5.5 – 14.5 cm high , together with cyme glabrous or almost glabrous ; dichasium 1- or 2-branched , 2 – 4-flowered ; bracts caducous . Tepals white inside , reddish outside , glabrous . Staminate flowers : pedicels 5 – 15 mm long ; tepals 4 , outer 2 suboblata , 9 – 10 mm long , 11 – 13 mm wide , inner 2 obovate , 6 – 7 mm long , 3 – 3.5 mm wide , slightly obtuse ; stamens numerous ; filaments 1 – 1.5 mm long ; anthers obovate , 1.2 mm long , connectives not extended . Pistillate flowers : pedicels 6 – 10 mm long ; tepals 3 , outer 2 suboblata , 6 mm long , 8 mm wide , inner 1 narrowly obovate , 5 mm long , 2.5 mm wide , slightly obtuse ; styles 3 , base connate , stigmas U-shaped , not contorted , papillate ; ovary smooth , trilobed ; placentae axile , bifid . Capsule nodding , ovoid , 7 mm long , glabrous , equally 3-winged , wings subsemiorbicular , 5 mm long . Seeds numerous and minute . Flowering in April .

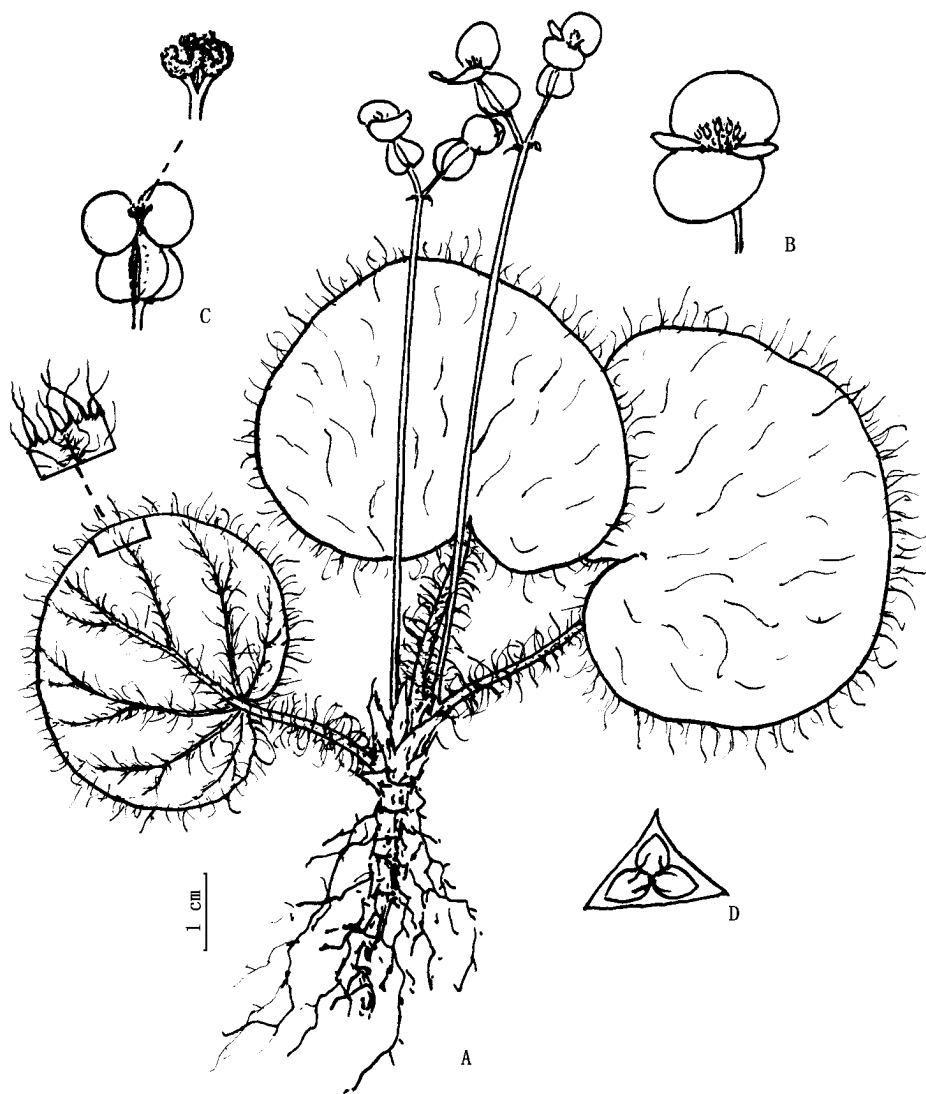


Fig. 4. *Begonia suboblata* D. Fang & D. H. Qin. A, habit; B, male flower; C, female flower; D, transverse section of capsule. Drawn by X. P. Liao from the type gathering, G. F. Meng 29613.

China. Guangxi (广西): Du'an (都安), Xiaao (下坳), in forests, limestone hill, rare, 1978-04-18, J. Y. Ban (斑景益) 4-10-210 (GXMI); the same locality, alt. 760 m, 2002-04-19, G. F. Meng (蒙高飞) 29613 (holotype, here designated, GXMI).

This species resembles *B. gulinquigensis* S. H. Huang & Shui, but differs by having leaf blades reniform, adaxially densely villous with hairs 7–13 mm long when young, both palmate and lateral nerves whitish in the living state, and 3 tepals in pistillate flowers. In *B. gulinquigensis*, the leaf blades are somewhat orbicular, and sparsely setulose on the upper surface, both palmate and lateral veins are green in the living state and its pistillate flowers have 5 tepals.

This species may be cultivated as ornamental plant.

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广西秋海棠属(秋海棠科) 4 新种

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摘要 描述了广西秋海棠属(秋海棠科) 的侧膜胎座组和秋海棠组 4 新种。

关键词 秋海棠属 ; 张氏秋海棠 ; 靖西秋海棠 ; 马山秋海棠 ; 都安秋海棠 ; 新种 ; 中国